

- 3 -

radially inner portion engagable with the wheel rim to be supportingly received thereon, the radially inner portion comprising a band adapted to be releasably fixed with respect to the outer periphery of the wheel rim by being welded thereto.

The welding may comprise welding, such as stitch or spot welding, at
5 circumferentially spaced intervals around the band.

Preferably, the band comprises a rigid band of fixed diameter.

Conveniently, the rigid band comprises a metal band.

The band may be welded to either one or both of the arcuate portions defining the outer periphery of the wheel rim. There is, however, an advantage in welding the
10 band only to the particular arcuate portion on the outer side of the wheel rim, as it would allow the tyre to be removed and replaced without the need to remove the wheel rim from the vehicle from which it is fitted.

This fixing arrangement is advantageous, as it is simple yet highly effective. The fitting process simply involves positioning the tyre onto the wheel rim and then
15 welding the band thereto. For removal of the tyre, all that is necessary is to remove the welded bond, typically by grinding off the welds, and then withdraw the tyre from the rim. In this way, the tyre can be fitted and removed without the need for the services of an experienced tyre fitter. All that is required is access to welding equipment and an ability to weld.

20 It is believed that the welding would not damage the wheel rim to an extent that would preclude use of the wheel rim for its originally intended purpose of receiving a pneumatic tyre, should that be required at some later stage.

While welding is a particularly convenient and effective way of releasably fixing the tyre to the wheel rim, other ways of fixing are also possible, as alluded to

25

- 5 -

an outer layer which is harder and more durable to provide good wear characteristics. The outer layer may also have the ability to be re-treaded.

According to a second aspect of the invention there is provided a combination of a wheel rim and a tyre, the wheel rim comprising a tyre support surface
5 incorporating a bead seat on each side of the rim, each bead seat comprising an inner seat portion and an outer seat portion terminating in an arcuate portion defining the outer periphery of the wheel rim, and the tyre comprising a radially inner portion engagable with the wheel rim to be supportingly received thereon, the radially inner portion comprising a band adapted to be releasably fixed with
10 respect to the outer periphery of the wheel rim by being welded thereto.

According to a third aspect of the invention there is provided a wheel rim and tyre assembly, wherein the wheel rim comprises a tyre support surface incorporating a bead seat on each side of the rim, each bead seat comprising an inner seat portion and an outer seat portion terminating in an arcuate portion defining the
15 outer periphery of the wheel rim, and wherein the tyre comprises a radially inner portion engaged with the wheel rim, the radially inner portion comprising a rigid band supportingly received on, and releasably fixed with respect to, the outer periphery of the wheel rim, the band being releasably fixed with respect to the outer periphery of the wheel rim by being welded thereto.

20 Whilst the invention as described hereinbefore has been concerned with non-pneumatic tyres, it could also be applicable to pneumatic tyres. For example, the cushioning structure provided on the rigid band may be pneumatic in construction.

Brief Description of the Drawings

The invention will be better understood by reference to the following description of
25 several specific embodiments thereof as shown in the accompanying drawings in which:

Figure 1 is a perspective view of a tyre according to a first embodiment of the invention;